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Mycological Bulletin No. 18

W. A. Kellerman, Ph. D., Ohio State University

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THE ILLUSTRATIONS.—Although the Mushrooms shown in this NUMBER are not the common edible forms, they are attractive and peculiar, and our interest in them need be none the less because we can not enjoy them as esculents; they are however not inedible and the *Phallus* particularly is considered a delicacy—to be used only of course in the egg stage. But there are other uses for plants even those of low degree and the editor being a schoolmaster will give a little lecture touching one phase of the subject—see next paragraph.

ECONOMY OF NATURE.—A brief paragraph may lend itself to the discussion of the group of Fungi, particularly to the *sap-ro-phyt'-ic* forms as factors in Nature's economy. The common plants—those which possess *chlo'-ro-phyll*, as the green coloring matter is called—are independent; they take from the air and soil inorganic matter, convert it with the aid of the light-energy that comes from the sun, into organic material out of which the vegetable fabric (and ultimately animal tissue) is built up. But the fungi are *dependent* plants; being destitute of *chlo'-ro-phyll* they rely for their food on living plants or on dead organic matter;—if the former we call them *par'-a-sites*, if the latter we say they are *sap'-ro-phytes*. Now all the Mushrooms and the common Bacteria are Saprophytes and their food is the organic matter—mainly dead wood, leaves, dead animal matter, etc. Those Mushrooms that grow out of the soil really use as food not the mineral soil particles, but the

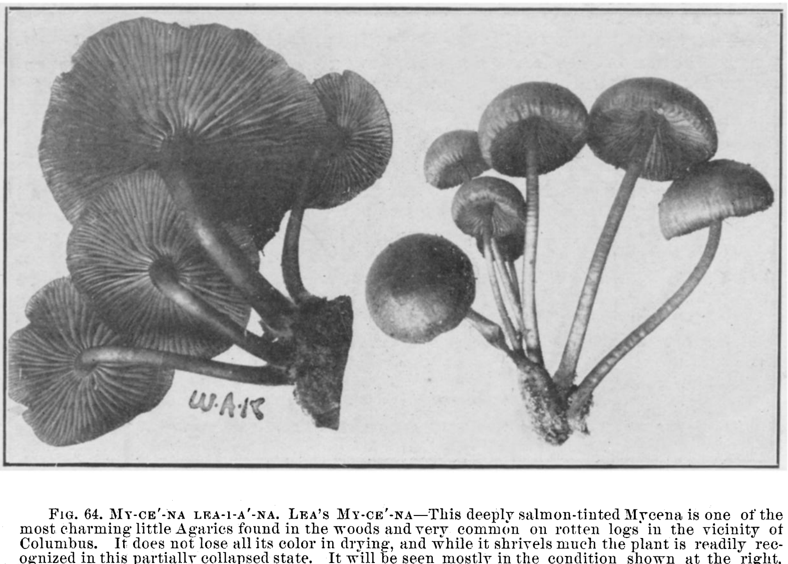

FIG. 64. MY-CE'-NA LEA-I-A'-NA. LEA'S MY-CE'-NA—This deeply salmon-tinted Mycena is one of the most charming little Agarics found in the woods and very common on rotten logs in the vicinity of Columbus. It does not lose all its color in drying, and while it shrivels much the plant is readily recognized in this partially collapsed state. It will be seen mostly in the condition shown at the right, but the deep rich color is displayed to best advantage when the fully expanded form is encountered—the figure at the left exhibiting this interesting phase. Ohio members of the club should know that the specific name was given by the English mycologist Berkeley, and commemorates one of the eminent early botanical collectors, who lived near Cincinnati, Ohio. Photo from specimen collected near Columbus.

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organic matter that is buried beneath the surface. Then it is evident that these plants decompose or reconvert the dead vegetable matter, which, bear in mind, would not of itself change. Logs, stumps, twigs, old leaves, animal substance would remain unchanged forever were not the agents of decomposition at hand, namely, *Bacteria, Mushrooms, Toadstools*, etc. The products of decomposition are the disorganized and disintegrated organic matter; they are, in other words, the chemical elements or the simple compounds handed back to the inorganic world *for use again as food* for plants, and secondarily for animals. The important work the saprophytes have to perform will be appreciated when we remember that the available quantity of plant food is limited and its continued restoration or replenishment is necessary to the continuance of of the higher plants and of course indirectly to the existence of animals even including man.

THE GENUS MY-CE'-NA.—These plants are mostly small white-spored Agarics. They are very numerous and so are their near relations, thus even the specialist might despair of really knowing all of them. They resemble some of the other genera very strongly and only careful study will result in positive identification. The genus My-ce'-na is closely related to Col-lyb'-i-a, says Atkinson. The plants are usually smaller, many of them being of small size; the cap is usually bell-shaped, rarely umbilicate [that is, with a small abrupt depression at top], but what is a more important character the margin of the cap in the young stage *is straight* as it is applied against the stem and not at first incurved as it is in *Collybia*, when the gills and margin of the pileus lie against the stem. The stem is cartilaginous as in *Collybia* and is usually hollow. The gills are not decurrent or only slightly so by a tooth-like process. Some of the species are apt to be confused with certain species of *Om-pha'-li-a* in which the gills are but slightly decurrent, but in *Omphalia* the pileus is umbilicate in such species, while in *Mycena* it is blunt or umbonate. Some of those which grow on leaves might be mistaken for species of *Ma-ras'-mi-us*, but in the latter the plants are of tough consistency, and when dried will revive again if moistened. In the above manner a specialist states the case but the apparent difficulty should not bring discouragement—an abundance of material will be favorable for repeated study of common forms that are encountered.

THE PHAL'-LOIDS, OR STINK-HORN FUNGI.—It has been previously explained that two of the larger and important groups of Fungi are the *As'-co-my-ce'-tae* and the *Ba-sid'-i-o-my-ce'-tae;* the former having spores produced in an enlarged cell, called an *as'-cus*, and the latter bearing the spores on pedicels growing out of an enlarged cell, called a *ba-sid'-i-um*. The species of Pe-zi'-za for example, belong to As'-co-my-ce'-tae; and the Puffballs, Phalloids, and Agarics are members of the group Ba-sid'-i-o-my-ce'-tae.

These microscopic characters might be passed by for the present or for all time, no doubt some beginners and amateurs are inclined to think, yet our knowledge of the multitudes of Fungi will be quite imperfect and our progress in their study much impeded if we do not fully apprehend what is so fundamental in their classification. Then to proceed—The Ba-sid'-i-o-my-ce'-tae includes the two ORDERS: represented by the Puffballs and the Phalloids, which the botanists call *Gas'-ter-o-my-ce'-tae;* and the Mushrooms or Agarics and their relatives designated, in botanical language, as the *Hy'-men-o-my-ce'-tae.*

It can be seen from the above where our Stink-horn Fungi or Phalloids belong in the Vegetable Kingdom. And to make the matter more emphatic, recur to the fact that the *Gas'-ter-o-my-ce'-tae* have their spore-bearing layer of tissue (which is called the *hy-me'-ni-um*) enclosed by a wall or covering, that is, a *pe-rid'-i-um* which does not rupture before the maturity of the spores. But in case of the *Hy'-men-o-my-ce'-tae*, the spore-bearing layer (*hy-me'-ni-um*) is borne on a free outer surface—as seen in the "gills" in Mushrooms, &c. The "veil" that in some cases covers the spore-bearing portion of the common Mushrooms is a false pe-rid-i-um, "pseudo-peridium," and ruptures before the maturity of the spores.

RAVENEL'S PHALLOID.—This species is rather common, especially about old saw-dust piles and its vile odor easily identifies the Stink-horn. Stages in its developement are shown in fig. 65.

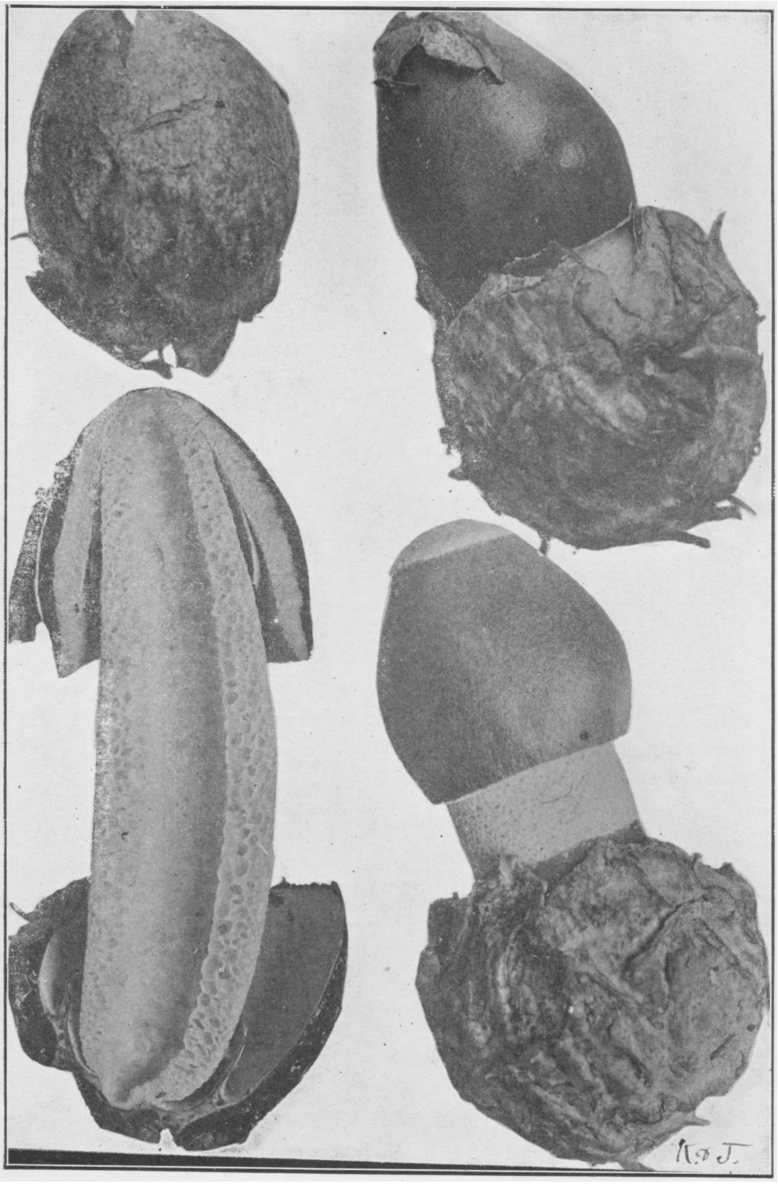

Fig. 65. Dic-ty-oph'-o-ra ra-ve-nel'-i-i. Ravenel's Phal'-loid.—This, like other species of the Stink-horns, is only disgusting in the fully developed stage; the "eggs" are agreeable to the palate. *Caution: Never mistake a poisonous "button" of Am-a-ni'-ta for one of these eggs;* a vertical section will diagnose the specimen. The photographs were made from growing specimens sent from Chillicothe, Ohio, by Supt. M. E. Hard.

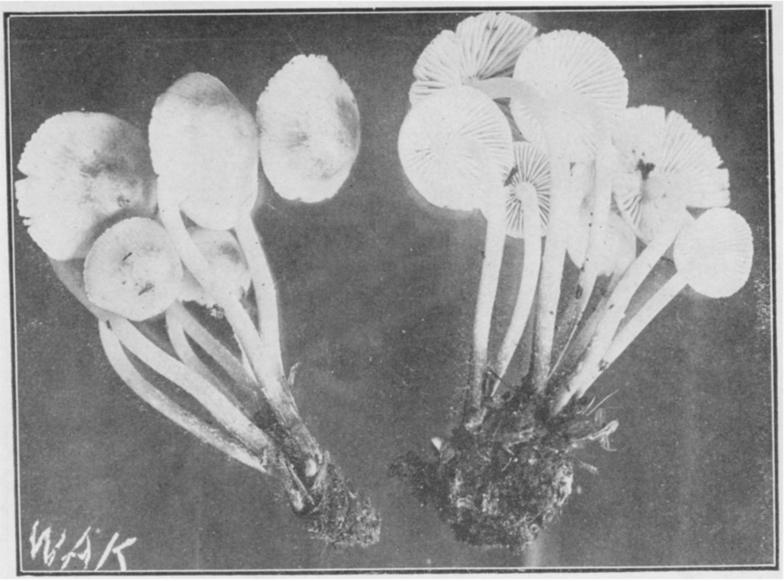

FIG. 66. MY-CE'-NA STAN'-NE A. STANNATE MY-CE'-NA.—A delicate species that grows in the woods, occurring in tufts on rotten wood in very damp secluded habitats. The general character is well shown in the illustration, being nearly white in color but many of the pilei are rather smoky or a trifle darkened. The species was described by the botanist Fries many years ago from European specimens. The second or specific name is taken from the Latin, and means *tin*- though I do not know that it is very appropriate to characterize these specimens as stannous in appearance. The halftone was made from a photograph of specimens collected May 30, at Sugar Grove, Ohio.

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